IN THE SPECIFICATION:

Please replace paragraph [0011] on pages 3-4 with :

[0011]

Thus, the present invention provides a polypeptide comprising the amino acid sequence of SEQ ID NO: 1 as well as a polypeptide having at least 80% homology to the amino acid sequence of SEQ ID NO: 1; having an amino acid sequence, wherein at least an amino acid residue at position 39, ~~84~~ 85, 296, or 300 from the N-terminus is Ala, an amino acid residue at position ~~85~~ 86 or 310 is Thr, an amino acid residue at position 163 or ~~333~~ 303 is Ser, an amino acid residue at position 195 or 257 is Leu, an amino acid residue at position 271 is Arg, an amino acid residue at position 297 is Asp, an amino acid residue at position 299 is Gly, an amino acid residue at position 313 is Pro, or an amino acid residue at position 316 is Val, in correspondence with the amino acid sequence of SEQ ID NO: 1; and having immunogenicity inducing the production of an antibody against the polypeptide comprising the amino acid sequence of SEQ ID NO: 1. The polypeptides include those isolated.

Please replace paragraph [0012] on page 4 with:

[0012]

In addition, the present invention provides a polypeptide fragment having a partial sequence of the amino acid sequence of SEQ ID NO: 1; or a partial sequence of an amino acid sequence having at least 80% homology to the amino acid sequence of SEQ ID NO: 1, wherein at least an amino acid residue at position 39, ~~84~~ 85, 296, or 300 from the N-terminus is Ala, an amino acid residue at position ~~85~~ 86 or 310 is Thr, an amino acid residue at position 163 or ~~333~~ 303 is Ser, an amino acid residue at position 195 or 257 is

Leu, an amino acid residue at position 271 is Arg, an amino acid residue at position 297 is Asp, an amino acid residue at position 299 is Gly, an amino acid residue at position 313 is Pro, or an amino acid residue at position 316 is Val, in correspondence with the amino acid sequence of SEQ ID NO: 1; and having immunogenicity inducing the production of an antibody against the polypeptide comprising the amino acid sequence of SEQ ID NO: 1. The polypeptide fragment includes those isolated.

Please replace paragraph [0016] on pages 4-5 with:

[0016]

Furthermore, the present invention provides a polynucleotide coding for a polypeptide comprising the amino acid sequence of SEQ ID NO: 1 as well as a polynucleotide coding for a polypeptide having at least 80% homology to the amino acid sequence of SEQ ID NO: 1; having an amino acid sequence, at least an amino acid residue at position 39, ~~84~~ 85, 296, or 300 from the N-terminus is Ala, an amino acid residue at position ~~85~~ 86 or 310 is Thr, an amino acid residue at position 163 or ~~333~~ 303 is Ser, an amino acid residue at position 195 or 257 is Leu, an amino acid residue at position 271 is Arg, an amino acid residue at position 297 is Asp, an amino acid residue at position 299 is Gly, an amino acid residue at position 313 is Pro, or an amino acid residue at position 316 is Val, in correspondence with the amino acid sequence of SEQ ID NO: 1; and having immunogenicity inducing the production of an antibody against the polypeptide comprising the amino acid sequence of SEQ ID NO: 1.

Please replace paragraph [0017] on page 5 with:

[0017]

Moreover, the present invention provides a polynucleotide coding for a polypeptide fragment having a partial sequence of the amino acid sequence of SEQ ID NO: 1; or a partial sequence of an amino acid sequence having at least 80% homology to the amino acid sequence of SEQ ID NO: 1, wherein at least an amino acid residue at position 39, ~~84~~ 85, 296, or 300 from the N-terminus is Ala, an amino acid residue at position ~~85~~ 86 or 310 is Thr, an amino acid residue at position 163 or ~~333~~ 303 is Ser, an amino acid residue at position 195 or 257 is Leu, an amino acid residue at position 271 is Arg, an amino acid residue at position 297 is Asp, an amino acid residue at position 299 is Gly, an amino acid residue at position 313 is Pro, or an amino acid residue at position 316 is Val, in correspondence with the amino acid sequence of SEQ ID NO: 1; and having immunogenicity inducing the production of an antibody against the polypeptide comprising the amino acid sequence of SEQ ID NO: 1.

Please replace paragraph [0021] on pages 5-6 with:

[0021]

Moreover, the present invention provides an RNA molecule consisting of the nucleotide sequence of ~~SEQ ID NO: 3~~ SEQ ID NO: 10 as well as an RNA molecule consisting of a mutant nucleotide sequence of the nucleotide sequence of ~~SEQ ID NO: 3~~ SEQ ID NO: 10 with the addition, deletion, or substitution of at least one base, and suppressing the expression of a protein specific to human liver cancer.

Please replace paragraph [0026] on pages 6-7 with:

[0026]

Figure 1 is a graph showing the expression level of Pim-3 in an HBsTg mouse;

~~Figure 2 shows the polynucleotide sequence of hPim-3 and its corresponding polypeptide sequence~~ Figure 2A shows the polynucleotide sequence of hPim-3 and its corresponding polypeptide sequence;

Figure 2B shows the polynucleotide sequence of hPim-3 and its corresponding polypeptide sequence;

Figure 3 is a diagram where the amino acid sequences of Pim-3 are compared among a human, a mouse, and a rat;

Figure 4 is a diagram where amino acid sequences are compared among human Pim-1, Pim-2, and Pim-3;

Figure 5 is a diagram showing hPim-3 and GAPDH mRNA expression in human normal tissue;

Figure 6 is a diagram showing human Pim-3 mRNA expression in a human liver cancer cell line;

Figure 7 is a diagram specifically showing hPim-3 expression in human liver cancer tissue;

Figure 8 is a graph showing a decrease in the survival activity of a human liver cancer cell, which was transfected with the siRNA of hPim-3;

Figure 9 is a diagram showing that cells started to exfoliate in the treated group on the 4th day and subsequent days of transfection of the siRNA of hPim-3; and

Figure 10 is a graph showing changes in the cell cycle of a human liver cancer cell in which the siRNA of Pim-3 was introduced.

Please replace paragraph [0031] on pages 7-8 with:

[0031]

As shown in Figure 3, the amino acid sequence (SEQ ID NO: 1) of a human Pim-3 protein, the polypeptide specific to liver cancer of the present invention, has the following characteristic points of difference, when compared with those of rat and mouse Pim-3 proteins: the amino acid sequence of SEQ ID NO: 1 differs from those of the rat and mouse Pim-3 proteins, in that the amino acid residues at positions 39, ~~84~~ 85, 296, and 300 from the N-terminus are Ala, the amino acid residue at position ~~85~~ 86 or 310 is Thr, the amino acid residues at positions 163 and ~~333~~ 303 are Ser, the amino acid residues at position 195 and 257 are Leu, the amino acid residue at position 271 is Arg, the amino acid residue at position 297 is Asp, an amino acid residue at position 299 is Gly, the amino acid residue at 313 is Pro, and the amino acid residue at position 316 is Val.

Please replace paragraph [0032] on page 8 with:

[0032]

Thus, the polypeptide homologue of the present invention is a polypeptide having at least 80% homology to the amino acid sequence of SEQ ID NO: 1; having an amino acid sequence, wherein at least an amino acid residue at position 39, ~~84~~ 85, 296, or 300 from the N-terminus is Ala, an amino acid residue at position ~~85~~ 86 or 310 is Thr, an amino acid residue at position 163 or ~~333~~ 303 is Ser, an amino acid residue at position 195 or 257 is Leu, an amino acid residue at position 271 is Arg, an amino acid residue at position 297 is Asp, an amino acid residue at position 299 is Gly, an amino acid residue at position 313 is Pro, or an amino acid residue at position 316 is Val, in correspondence with the amino acid sequence of SEQ ID NO: 1; and having immunogenicity inducing

the production of an antibody against a polypeptide comprising the amino acid sequence of SEQ ID NO: 1. The homology of the homologue is especially 90%, preferably 95%, particularly preferably 97%.

Please replace paragraph [0033] on page 8 with:

[0033]

The peptide fragment of the specific polypeptide of the present invention is a polypeptide fragment having a partial sequence of the amino acid sequence of SEQ ID NO: 1; or a partial sequence of an amino acid sequence having at least 80% homology to the amino acid sequence of SEQ ID NO: 1, wherein at least an amino acid residue at position 39, ~~84~~ 85, 296, or 300 from the N-terminus is Ala, an amino acid residue at position ~~85~~ 86 or 310 is Thr, an amino acid residue at position 163 or ~~333~~ 303 is Ser, an amino acid residue at position 195 or 257 is Leu, an amino acid residue at position 271 is Arg, an amino acid residue at position 297 is Asp, an amino acid residue at position 299 is Gly, an amino acid residue at position 313 is Pro, or an amino acid residue at position 316 is Val, in correspondence with the amino acid sequence of SEQ ID NO: 1; and having immunogenicity inducing the production of an antibody against the polypeptide comprising the amino acid sequence of SEQ ID NO: 1.

Please replace paragraph [0035] on page 9 with:

[0035]

In the present specification, the N-terminuses (amino terminuses) of the ~~polynucleotide~~ polypeptide, the homologue, and the polypeptide fragment (hereinafter, abbreviated to the ~~polynucleotide~~ polypeptide and so on, if necessary) are indicated in the left, and the C terminuses (carboxyl terminuses) thereof are indicated in the right, in

accordance with the standard notation. The polypeptide of the present invention can have a carboxyl group (-COOH), carboxylate (-COO-), amide (-$CONH_2$), or ester (-COOR) at the C terminus. Examples of the side chain R of this ester include: C_1 to C_6 alkyl groups such as methyl, ethyl, n-propyl, isopropyl, and n-butyl; C_3 to C_8 cycloalkyl groups such as cyclopentyl and cyclohexyl; C_6 to C_{12} aryl groups such as phenyl and α-naphthyl; and alkyl groups such as phenyl-C_1 to -C_2 alkyl groups such as benzyl and phenethyl or α-naphthyl-C_1 to -C_2 alkyl groups such as α-naphthylmethyl.

Please replace paragraph [0075] on page 18 with:

[0075]

The RNA molecule of the present invention may be an RNA molecule consisting of the nucleotide sequence of ~~SEQ ID NO: 3~~ SEQ ID NO:10, or an RNA molecule consisting of a mutant nucleotide sequence of the nucleotide sequence of ~~SEQ ID NO: 3~~ SEQ ID NO:10 with the addition, deletion, or substitution of at least one base, and suppressing the expression of a protein specific to human liver cancer. The RNA molecule (siRNA) can be designed on the basis of the sequence of polynucleotide of the present invention according to a method known in the art (e.g., Nature, Vol. 411, pp. 494, 2001).

Please replace paragraph [0108] on page 25 with:

[0108]

In addition, the amino acid sequence (SEQ ID NO: 1) obtained from the ORF had high identity (95.0%) to those of mouse and rat Pim-3 ~~polynucleotides~~ polypeptides (Figure 3). Based on these results, the present inventors judged the clone human Pim-3 cDNA.

After the Abstract and before the Drawings, please insert the following Sequence Listing:

SEQUENCE LISTING

<110> Kureha Chemical Industry Company Limited

MUKAIDA, Naofumi

FUJII, Chifumi

<120> Polypeptide associated with hepatocellular carcinoma, polynucleotide encoding the polypeptide and RNA molecule supressing the polypeptide expression

<130> 0701011WO1

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<170> PatentIn version 3.1

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Gly Gly Phe Gly Thr Val Tyr Ala Gly Ser Arg Ile Ala Asp Gly Leu
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Pro Val Ala Val Lys His Val Val Lys Glu Arg Val Thr Glu Trp Gly
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Ser Leu Gly Gly Ala Thr Val Pro Leu Glu Val Val Leu Leu Arg Lys
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Val Gly Ala Ala Gly Gly Ala Arg Gly Val Ile Arg Leu Leu Asp Trp
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